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ISTAR-KR Matrix: Mathematical Practices **OSEP Outcome 2** **Indiana Common Core Standard (INCC): Counting and Cardinality; Number and Operations in Base Ten**						
KR: Counting and Quantity (number names, count objects, understand value of numbers, e.g., 10 ones in number 10) ***The skills below begin on the left with the least mature skills/indicators and progressively advance to the right to KG skills/indicators in the sixth column.***						
No Evidence	**Demonstrates awareness of the presence of objects**	**Identifies more**	**Uses numbers to compare**	**Names and orders quantities**	**KG Skill: Describes relationships between numbers and quantity** (to be mastered by end of KG)	**First Grade Skills** (to be mastered by the end of 1st grade)
	Looks at/observes hanging mobile or object held in front of face	Demonstrates awareness of the presence of objects	Identifies more	Uses numbers to compare	Names and orders quantities	
	Follows a moving object or sound of an object	Indicates desire for "more"	Uses whole numbers up to 5 to describe objects and experiences	Counts a number of objects up to 10	Counts to 100 by ones and tens	
	Shows displeasure when a desirable object is removed	Identifies which amount is "more" (e.g., visually, tactilely, or auditorally)	Touches or points to each object in a sequence only once	Identifies the next number in a series of numbers	Counts forward beginning from a given number within the known sequence (instead of beginning at 1)	Extends the counting sequence; Counts to 120, starting at any number less than 120; in this range, read and write numerals and represent a number of objects with a written numeral
				Uses drawings to represent quantity and numbers	Writes numbers from 0 – 20; Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects)	

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	Shows pleasure when a desirable object is received	Gives more when asked	Identifies when objects are the same number, even if arrangement is changed	Identifies "first" and "last"	Understands the relationship between numbers and quantities; connect counting to cardinality: Counts objects with number names in order; understands the last number name said tells the number of objects; the number of objects remains the same regardless of their arrangement or the order in which they were counted; understands that each successive number name refers to a quantity that is one larger	Understands that the two digits of a two-digit number represent amounts of tens and ones; understands the following as special cases:10 can be thought of as a bundle of ten ones – called "ten"
	Attends to the face of a person when held	Identifies which collection is "more" (e.g., visually, tactilely, or auditorally)	Identifies when a number of objects is "less" (e.g., visually, tactilely, or auditorally)		Counts to answer "how many" question: about as many as 20 things arranged in a line, rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, counts out that many objects	Adds within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relates the strategy to a written method and explains the reasoning used
				Gives "the rest" when asked	Identifies whether the number of objects in one group is greater that, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies	Understands place value, e.g., compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <
					Compares two numbers between 1 and 10 represented as a written numeral	

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					Works with numbers 11 -19 to gain foundations for place value (e.g., compose and decompose numbers from 11 to 19 into ten ones and some further ones, by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understands that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones	Given a two-digit number, mentally finds 10 more or 10 less than the number, without having to count; explains the reasoning used

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ISTAR-KR Matrix: Mathematical Practices **OSEP Outcome 2** **INCC: Operations and Algebraic Thinking**						
Computation (understand addition as putting together and adding to, and understand subtraction as taking apart and taking from) ***The skills below begin on the left with the least mature skills/indicators and progressively advance to the right to KG skills/indicators in the sixth column.***						
No Evidence	**Manipulates objects for a purpose**	**Matches objects and sets**	**Makes a set of objects smaller or larger**	**Follows models of addition or subtraction situations**	**KG Skill: Describes the application of addition and subtraction situations** (to be mastered by end of KG)	**First Grade skills** (to be mastered by the end of 1st grade)
	Pulls or breaks apart food	Manipulates objects for a purpose	Matches objects and sets	Makes a set of objects smaller or larger	Follows models of addition or subtraction situations	
	Lines up objects	Puts pairs together	Makes a collection of items larger by adding when asked	Creates a collection equal to objects in a collection already constructed	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situation, verbal explanations, expressions, or equations	Uses addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawing, and equations with a symbol for the unknown number to represent the problem
	Attends to a new object in a group of objects	Matches sets of objects one-to-one	Makes collections of items smaller by taking items away when asked	Describes addition situations for numbers less than 5	Solves addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem	Add and subtract within 20
	Puts an object in mouth to explore	Uses the term “same”	Identifies “one more”, “one less”	Describes subtraction situations for numbers less than 5	Decomposes numbers less than or equal to 10 into pairs in more than one way, e.g., by using object or drawings, and records each decomposition by a drawing or equation (e.g., 5 = 2 + 3	Applies properties of operations as strategies to add and subtract e.g., if 8 + 3 = 11, then 3 = 8 = 11 is also known

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					and 5 = 4 + 1)	
			Describes addition and subtractions situations for numbers less than 3	Uses the term "half"	For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and records the answer with a drawing or equation	Understands subtraction as an unknown-addend problem e.g., subtract 10 – 8 by finding the number that makes 10 when added to 8
				Uses the term "whole" when combining a whole quantity of something		Works with addition and subtraction equations, e.g., understand meaning of equal sign; determine unknown whole number in addition or subtraction equations
						Relates counting to addition and subtraction (e.g., by counting on 2 to add 2)

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ISTAR-KR Matrix: Mathematical Practices **OSEP Outcome 2** **INCC: Measurement and Data**						
Time (understands time in relation to events, sequence events, use measuring units of time) ***The skills below begin on the left with the least mature skills/indicators and progressively advance to the right to KG skills/indicators in the sixth column.***						
No Evidence	**Anticipates a routine**	**Uses vocabulary to identify events in a routine**	**Sequences events**	**Uses measuring vocabulary for time**	**KG Skills: Uses measuring units for time** (to be mastered by end of KG)	**First Grade Skills** (to be mastered by the end of 1st grade)
	Cooperates with routines	Anticipates a routine	Uses vocabulary to identify events in a routine	Sequences events	Uses measuring vocabulary for time	Tell and write time in hours and half-hours using analog and digital clocks
	Anticipates an event in a sequence during daily activities	Responds to now, next, done	Independently completes an activity that requires 3 things be done in sequence	Uses concepts of morning, afternoon, night, today, tomorrow	Uses the terms week, month, year	
	Prepares for something anticipated	Responds to "one more…" (time, book)	Tells 3 events in chronological order	Uses concepts of today, yesterday and tomorrow	Uses the term, minute, hour, day	
	Associates familiar events with concrete objects(e.g., blanket for bedtime)	Uses a word or shows an object that represents bedtime or mealtime	Differentiates past and future events	Explains how something may change over time		
	Follows along with a simple routine		Identifies first and last events			

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ISTAR-KR Matrix: Mathematical Practices **OSEP Outcome 2** **INCC: Measurement and Data**						
KR: Location ***The skills below begin on the left with the least mature skills/indicators and progressively advance to the right to KG skills/indicators in the sixth column.***						
No Evidence	**Demonstrates an awareness of location of objects**	**Identifies location**	**Follows directions involving location**	**Communicates with location words**	**KG Skill: Uses prepositions to describe location** (to be mastered by end of KG)	**First Grade Skills** (to be mastered by the end of 1st grade)
	Pours substances in and out of containers	Explores measurement attributes	Distinguishes between big and little, hot and cold	Differentiates gradients of size and weight	Uses common measuring tools in correct context	Expresses the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understands that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps (limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps)
	Responds to hot and cold	Distinguishes between big and little	Orders 3 objects by size	Uses a cup to act out a measurement of capacity	Describes three-dimensional shapes to identify their various attributes including faces and edges	Orders three objects by length; compare the lengths of two objects indirectly by using a third object
	Responds to “all done”, “want more”	Makes choices based on size	Assembles a set of nesting objects	Uses a ruler to act out a measurement of length or height	Distinguishes between measurable and non-measurable attributes of objects (Note: Measurable means quantifiable, such as length, weight, height, distance around)	Organizes, represents, and interprets data with up to three categories; asks and answers questions about the total number of data points, how many in each category, and how many more or less are in one category than in another

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	Responds to "one more…" (e.g., time, book)	Communicates feelings of hot and cold	Recognizes which object is lighter/heavier	Uses a scale to act out a measurement of weight	States the difference of two- and three-dimensional shapes in different sizes and orientations	
		Communicates size of things relative to self	Recognizes which object is warmer/cooler	Uses a thermometer to act out a measurement of temperature	States the similarities of two- and three-dimensional shapes in different sizes and orientations	
		Uses descriptive word or gesture to express amount or size	Recognizes which object can hold more		Names the measurable attributes of a given object	
			Recognizes which object is shorter, longer or taller		Compares the measurable attributes of two objects using appropriate vocabulary including taller/shorter heavier/lighter, and longer/shorter (e.g., For example, directly compare the heights of two children and describe one child as taller/shorter)	

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ISTAR-KR Matrix: Mathematical Practices **OSEP Outcome 2** **INCC: Geometry**						
KR: Sorting and Classifying Objects (classify objects and count attributes of objects) ***The skills below begin on the left with the least mature skills/indicators and progressively advance to the right to KG skills/indicators in the sixth column.***						
No Evidence	**Explores attributes (e.g. shape, size, color)**	**Matches same attributes**	**Matches opposites**	**Sorts and patterns by one attribute**	**KG Skill:** **Sorts and patterns by more than one attribute** (to be mastered by the end of KG)	**First Grade Skills** (to be mastered by the end of 1st grade)
	Attends to visual, auditory, tactile patterns	Explores attributes (e.g., shape, size, color)	Matches same attributes (at least two)	Matches opposites	Sorts and patterns by one attribute	
	Shows interest in something out of place, (e.g., finding a small object on the carpet)	Matches squares, circles	Puts together pairs of pictures of opposite, at least two	Names groups of objects according to the common attribute	Identifies and describes the following shapes: squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, spheres, at least 8	Distinguishes between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); builds and draws shapes to possess defining attributes
	Uses a shape toy to explore basic shapes	Matches rectangles, triangles	Names the opposite of a given quality	Identifies geometric shapes - four (e.g., circles, triangles, squares, rectangles, cubes)	Describes objects in environment using names of shapes; correctly name shapes regardless of orientations or size; identify shapes as two-dimensional (flat) or three-dimensional (solid)	
	Puts smaller objects into larger holes, slots or depressions	Identifies when object are the same	Identifies objects that do not belong to a particular group	Puts objects into groups with the similar attribute	Classifies objects into given categories such as size, shape, color, thickness	
		Identifies and matches two colors		Compares and sorts by roundness, numbers of corners	Analyzes, compares, creates and composes shapes: two-dimensional shapes to identify their similarities, differences, and parts, including vertices, sides, corners, and length of sides	Partitions circles and rectangles into two and four equal shares; describes the shares using the words halves, fourths, and quarters; uses the phrases half of, fourth of, and quarter of; describes the whole as two of, or four of the shares; understands for these examples that decomposing into more equal shares creates smaller shares
				Recognizes 5		

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				colors		
				Predicts what comes next when shown a simple AB pattern of objects	Model shapes in the world by building shapes from components (e.g., sticks, clay, balls, and marshmallows)	
					Creates a new shape to form larger shapes, e.g., two triangles to make a rectangle	Composes two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape